

# Greater Cairo Wastewater (CWO) Management Assessment and Future Mission Options and Recommendations

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## FORWARD



*Collaborative Approaches for Resolving Water Issues*

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# EXECUTIVE SUMMARY

## Introduction

This report is an assessment of the current organizational structure and institutional capacity of the Organization for the Execution of the Greater Cairo Wastewater Project (CWO) in light of its stated mission and activities over nearly twenty years, its current activities and adjustments made to address changing conditions, and the stated vision of CWO to continue to be responsive to the issues it must address in the future. The study performs this assessment in the context of the overall issues and initiatives shaping the Egyptian water and wastewater sector. Finally, the assessment identifies specific areas and activities within CWO where improvements are needed to continue to fulfill its mission and responsibilities.

CWO was created in 1981 by Ministerial Decree No. 479 for the purpose of preparing the necessary plans for expansion and improvement of the wastewater collection and treatment systems of Greater Cairo, and implementing the approved projects. To that end, CWO is responsible for preparing tender documents, tendering, awarding, contracting, and supervising the execution of contracts.

The formation of CWO came at a time of unparalleled infrastructure development in Egypt. The CWO has been managing the Greater Cairo Wastewater Project during the past two decades, which has been its major undertaking. The primary objectives of the project were to rehabilitate the existing collection system, and build a new collection and treatment system. Its execution has spanned two decades thus far, and has cost the GOE and international donors approximately seven billion Egyptian pounds.

The magnitude and cost of the project presented significant management and technical challenges. Although, the real challenge was to overcome the lack of capabilities in planning, design, construction and operation and maintenance at the time in the Egyptian public and private sectors. CWO, as the organization tasked for managing the execution of the Greater Cairo Wastewater Project, was able to assemble the human resources, learn from its consultants, and successfully oversee the construction of one of the largest public infrastructure projects in the world.

The project is not yet completed and the needs of the Greater Cairo wastewater collection and treatment infrastructure system have not been fully addressed thus far. CWO is involved in the process of planning and identifying funding for this major additional construction.

Since 1990, the activities of CWO have been expanding. With the commissioning and start-up of the completed facilities, CWO responsibilities have expanded beyond project oversight. It is also responsible for ensuring that the facilities are operational and that the staff has the necessary skills and knowledge for their proper operation and maintenance, and for accepting and transferring control of the facilities to the owner, CGOSD.

This transfer of control has had problems because of a major dispute between the CGOSD and the construction contractors, which has resulted in CGOSD not accepting ownership of the Amariya Tunnel Pumping Station (TPS). This complex is being operated and maintained by private contractors under an extended period maintenance contract, and under the supervision of CWO. Also, completed elements of the Gabal El Asfar wastewater treatment plant (WWTP) are

operated and maintained under a special contract with private sector service contractors, and under the supervision of CWO as well.

As a result of this short-term and transitional role, the CWO of today is very different than that of the early eighties, in terms of functional responsibilities. The supervision of the O&M services at Amariya TPS and the oversight of the special O&M contract at Gabal El Asfar WWTP are outside the originally envisioned core functions of CWO. Clearly, the efficient and effective operation and maintenance of these two contracted facilities are of immense importance to the sustainability of the Greater Cairo wastewater treatment system.

## **1. Organizational assessment**

### **Organizational Structure**

The current organizational structure of CWO, in terms of division and delegation of authority and responsibility, as well as the presence of a clear chain-of-command, is satisfactory for enabling the organization to perform its mandated and originally envisioned functions of construction contract execution. Currently, CWO is structured slightly differently than that established by Ministerial Decree 479/1981. Its structure is built around three central departments which represent the original core functions of the organization. The evolved functions of CWO in contracted O&M services are not reflected in its organizational structure.

The organization is governed by a Board of Directors, and an Execution Committee follows up on the activities and projects which CWO is responsible for. While the lines of reporting are distributed evenly among the three central departments, the Office of the Chairman has twelve direct reports; too many for effective supervision.

### **Staffing Levels and Skills**

The staffing levels and skills of CWO seem to be adequate for its current mission. The size of the organization is relatively small, by Egyptian standards, and its past performance indicates the presence of skilled managers, engineers, and technicians.

At the time of the assessment, the organization had 737 employees assigned to the three central departments and the Office of the Chairman. Of the 737 employees, only 375 (51%) are permanent and 338 (46%) are temporary or contract employees. This low percentage of permanent staff is viewed as positive, as it allows the organization to adjust its staffing levels as its work fluctuates, and reflects the nature of construction, CWO's core business, which fluctuates as well.

The above staff managed a construction portfolio of nearly LE 650 million in FY 98/99 invested in six major projects. This indicates a fairly high productivity rate for an organization of this size and nature.

### **Financial Sustainability**

An analysis of CWO's final accounts for FY 98/99, shows that LE 12,311,300 was spent for salaries and LE 337,052 for commodities and services. Of the LE 12.3 million spent in salaries, bonuses, and benefits, only LE 2 million or 16.2% was funded by BAB 1, the usual official

mechanism for funding such an expenditure. The balance, LE 10.3 million or 83.8%, was funded by BAB 3, which is the official funding mechanism for capital improvements.

This analysis reveals that the dependency of CWO on BAB 3 for the majority of its personnel expenses presents a financial management and long-term sustainability challenge to the organization. CWO should develop and implement a financial management model and plan for its *variable* or project execution derived expenditures.

## **2. Functional Capabilities**

### **Strategic Planning**

Although CWO has a strategic plan, largely prepared by consultants, no formal and internally staffed strategic planning process exists.

### **Performance Management System**

There is no formal organizational performance management system that evaluates the performance of the entire organization, based on clear and measurable performance indicators. Also, there is no meaningful personnel performance appraisal system.

### **Management Support Systems**

CWO has developed and uses several management support systems. The Central Department of Execution has developed a comprehensive data base of all projects which CWO oversees. And the Department of Statistics has developed data bases of personnel and financial records, which are made available to the Chairman and senior management, routinely or by request, as management tools. There are not sufficient in-house computer engineers and technicians, however, for IT support and hardware maintenance.

### **Personnel Administration**

As with all other Egyptian governmental organizations, CWO is strongly affected by the Central Agency for Organization and Administration (CAOA), which must approve its organizational structure, all positions, job descriptions, and personnel qualifications, salary ranges and increases. The organization, however, has been fortunate in that it has been able to supplement the salaries and bonuses of its staff from several external sources, and thus secure a higher than usual level of professionals.

### **Human Resources Development and Training**

Possibly the most impressive finding of this institutional assessment was the technical and management skills, as well as the knowledge and attitude of the senior management of CWO. They displayed an uncommon spirit of teamwork, comradery, confidence, and positive thinking; demonstrated good analytical skills; and unanimously supported the management practices and leadership of the Chairman.

There is no institutional capacity evident, however, to ensure that this organizational edge can be maintained. There is no training department, and no formal training plans and needs have been developed, nor are any under development. Also, serious deficiencies exist in CWO's training budget.

## **Project Execution**

The core functions of CWO is to plan for major wastewater infrastructure projects in Greater Cairo; seek and secure funding for their execution; prepare tender documents, specifications and contracts; conduct tender analysis; award contracts; supervise project implementation; and accept and transfer the assets to the owner.

In carrying out this function, CWO appears to have performed well. As a result of outstanding leaders and staff, the organization has been able to develop and implement effective systems and procedures to fulfill its mission.

The Greater Cairo Wastewater Project, however, is not yet completed. Elements of the Gabal El Asfar wastewater treatment system are still under construction. Additionally, the Greater Cairo wastewater collection and treatment infrastructure is not complete. Significant deficiencies in capacity and level of treatment exist. CWO is leading the effort of planning and identifying funding for this major additional construction.

Moreover, the Greater Cairo system is planned to be divided into three PEAs (Cairo, Giza, and Qaliubiya), if the sectoral reform is approved. This will likely create additional needs for an organization like CWO.

It can then be concluded that CWO will be required to continue its activities in performing its traditional and mandated core responsibilities, as defined by Ministerial Decree No. 479/1981 and reaffirmed by the proposed sectoral reform.

## **Supervision of Contracted O&M Services**

The role of CWO has been expanded in the past five years to include the supervision of contracted O&M services for a portion of the Greater Cairo wastewater collection and treatment system, which is beyond the envisioned role of commissioning, training and asset transfer. Given that this is a new activity for the organization, and very different than its core functions, the assessment team gave it focused attention, as a possible problematic area.

There was never an intent, when the mission of CWO was first established, that CWO would be required to undertake extended activities in the area of operations and maintenance management of facilities. Consequently, CWO had never focused its resources on developing contract and management structures that are particularly suited to the unique requirements of such an activity.

In particular, more rigorous, quantifiable performance standards are required within the contract documents, so that operations and maintenance standards are met on a daily, routine basis. Based on observations made by the assessment team at Amariya Pump Station and at Gabal El Asfar Wastewater Treatment Plant in terms of deficiencies in O&M, one possibility is that the current contracts do not lend themselves to rigorous performance enforcement and need to be amended. Alternately, a new competitive procurement for services needs to be conducted, to provide CWO with contract documents that serve the objectives of environmental compliance and asset preservation.

If CWO's role in these activities needs to continue into the foreseeable future, CWO will need to make changes to its organizational structure, as well as develop additional capacity in the unique contracting and monitoring of this type of service. The Greater Cairo wastewater collection and treatment system is a vast and complex one. To operate and maintain such a system, which also



greatly impacts public health and the environment, is a very challenging undertaking. Continuing the operation, maintenance and management of this system in its current arrangement, presents potential public health and political risks to the Government of Egypt. Moreover, without a final resolution of the assumption of ownership and operation of assets by CGOSD, this situation, resulting in the assets being managed by CWO, will continue to be a financial burden on the national treasury.

GOE has correctly assessed these liabilities and is taking action in the water and wastewater sector by means of the legal, institutional and regulatory reform under way. With the emphasis that is given to private sector participation, contracting with the private sector and managing the performance of contracts should be a high priority for the GOE.

While the preparation of the proper bid and contract documents is fundamental to any contracting process, ensuring strict contractual compliance, by monitoring its execution, is essential to achieving the end product, which is the purpose of the contracting process.

For all of the above reasons, CWO needs to strengthen its institutional capacity in bidding, negotiating, and awarding service delivery contracts and monitoring contract compliance.

### **3. Institutional Challenges**

To fully understand what CWO is, it is necessary to look into what is behind its documentable success story, and examine the challenges that lie ahead.

#### **CWO's Success Factors**

- CWO consists of a core group of professionals most of whom have been with the agency since its inception. They are well educated and trained in modern design and construction management practices.
- They are being driven by the challenge and prestige of being associated with one of the largest and most prestigious public works projects in modern Egypt, and are the elite of their field in Egypt.
- The organization has been blessed with excellent leaders who have a clear vision for the future.
- They have created an uncommon environment of informed and participatory management.

#### **CWO's Challenges Going Forward**

Most of this success, however, lies behind them and many challenges lie ahead. The leadership of the organization needs to address the following questions:

- Can CWO sustain its past practices and institutional edge?
- Can it continue to attract and retain quality staff?

- Is the organization developing the next generation of managers and technical specialists?
- Will training and personnel development remain as priorities, and can the organization afford it without foreign assistance?
- Is the organization committed to developing and sustaining the appropriate information technology?
- Will the organization adopt performance management systems for all its functional areas?
- What will be the next “glue” which will keep them together?
- How might CWO evolve to meet the needs and challenges of a changing water/wastewater sector?

### **Issues and Initiatives in the Water/Wastewater Sector**

The water and wastewater sector in Egypt is currently undergoing substantive legal and regulatory reform, which will have a major impact on the Greater Cairo wastewater utility. Additionally, there are several issues affecting the present operations of the CGOSD wastewater facilities, which pose a threat to their sustainability.

### **Assessment of CGOSD**

In November 1998, USAID commissioned an assessment of the current managerial capacity of CGOSD to carry out its mission. The assessment concluded that there is evidence that a deterioration of the substantial investment made by Egypt in wastewater has begun, and with that will come reduction in the quality of service and most likely frequent system failures. This deterioration is mainly the result of improper operation and maintenance.

In light of this finding, the CGOSD assessment recommends that CGOSD management initiate a rapid change in the way the assets of the utility are protected and operated by:

- improving internal performance; and
- contracting all operational services

To that end, the assessment recommends that CGOSD should seriously consider engaging the services of a private sector service provider to operate and maintain all of its treatment plants and major pump stations under a performance based contract.

### **Sector Reform Project (LIRR)**

In 1998, the Egyptian Cabinet decided to move forward with national reorganization of the water and wastewater sector. A draft law and presidential decree have been prepared under the Legal, Institutional and Regulatory Reform (LIRR) Project. The principal objectives of the sectoral reform are:

- enable and encourage utilities to achieve new service and performance standards;
- enable and encourage utilities to achieve operating cost recovery; and
- encourage private sector participation.

The reform aims at changing the institutional and regulatory framework to provide incentives (rewards and sanctions) for local utilities to improve customer service and commercial performance.

#### **4. Recommendations for Strengthening CWO's Capacity**

##### **Organizational Restructuring**

Organizational restructuring and definition of functional areas will be necessary to create new department(s) for preparing and managing private sector contracts for service delivery and BOOT type projects. CWO has strong foundations in construction contracting. It needs to develop similar specialized expertise in the O&M and utility management fields as well. Also, the organization should consider creating a permanent staff function for strategic planning reporting to the Office of the Chairman.

##### **Staff Development**

CWO is fortunate to have a large cadre of engineers and managers who have a high degree of competency in their respective areas of expertise. This is, however, the result of extensive training provided to CWO's staff over the past two decades and not that of an institutional commitment to training.

For CWO to maintain its competitive edge and meet its current challenges, it is essential that it adopt a strong personnel development policy independent of any outside assistance. Additionally, the new functional areas will require a set of skills which do not currently exist in CWO. Establishing a training unit and increasing the training budget line-item are top priority recommendations.

#### **5. Technology Development and Transfer**

##### **Information Technology**

CWO should expand its Information Technology (IT) capabilities and increase its applications in more functional areas of the organization. The biggest challenge that CWO faces, however, is assuring that the outputs of IT are reliable and accurate. As the organization becomes more dependent on IT outputs for its decision making, it is critically important that appropriate quality controls are instituted to review and verify the accuracy of the inputs and outputs of the computerized management support systems.

##### **Standardized Bid and Contract Documents**

The contract structures used for delivering services in the wastewater sector should be performance based. They should include clear and measurable performance indicators which focus on effluent compliance, cost effectiveness, and asset protection. To that end, CWO should develop standardized bid and contract documents that include performance standards (specifications). Moreover, the organization should develop standardized pre-qualification and selection criteria for O&M contractors.

## **Organizational Performance Management**

Managing organizational performance is perhaps the single most important activity an organization can perform to assure it fulfills its mission. A performance management system is essential for CWO, especially as the agency expands its role from infrastructure execution oversight (easily evaluated), to service delivery contract management (more difficult to evaluate). The system adopted by CWO must address not only the proper systems and procedures, but the proper management mind-set that is able to recognize and measure the performance indicators of this new functional capability.

## **Contracts Monitoring and Compliance**

It is recommended that CWO creates a Contractual Monitoring and Compliance Unit which reports directly to the Office of the Chairman and is independent of the Central Department of Execution. The mission of this unit will be to assure strict compliance with the terms of the contracts in a fair and equitable manner for all parties concerned. Its functions will be analogous to those of a quality assurance and control or internal audit.

Considerable effort needs to be expanded in this area, preferably by outside consultants, in assisting in the development of the appropriate performance indicators, compliance check lists, and reporting mechanisms.

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Purpose of Report and Methodology of Assessment**

This report presents an assessment of the current organizational structure and institutional capacity of CWO in light of its stated mission and activities over nearly 20 years, its current activities and adjustments made to address changing conditions, and the stated vision of CWO to continue to be responsive to the issues that it must address in the future. The study performs this assessment in the context of the overall issues and initiatives taking place in the Egyptian water and wastewater sector. Finally the assessment identifies specific areas and activities within CWO where improvements are needed to continue to fulfill its mission and responsibilities.

In conducting this study, the assessment team interviewed numerous staff members of the CWO senior management, reviewed previous assessments of CWO conducted by USAID, and conducted in depth evaluations of CWO's capacity to monitor the currently contracted operations and maintenance services. Also, the assessment team reviewed independent assessments of CGOSD and the National Organization for Potable Water and Sanitary Drainage (NOPWASD), conducted by USAID, and the proposed water/wastewater sector reform prepared under the Legal, Institutional and Regulatory Reform Project (LIRR), also funded by USAID.

### **1.2 CWO Authorization & Responsibilities**

Prior to 1980, the wastewater collection and treatment system of Greater Cairo had suffered from the effects of age, misuse, lack of maintenance, and design deficiencies, which had resulted in surcharging of the sewers and interceptors, as well as pump station, and treatment plant failures. Raw sewage flooded the streets and ground floor dwellings; and the drains receiving effluent wastewater from the treatment plants were septic for their entire length. These conditions had created serious public health and environmental problems and significant barriers to prosperity and economic growth in general.

To alleviate this problem, the Government of Egypt (GOE) sought international aid. As a result, the international donor community was mobilized and a comprehensive and massive infrastructure development project, the Greater Cairo Wastewater Project, was initiated. This type and magnitude of planning, design, and construction, however, required an effective and efficient wastewater utility which would function as the owner of this huge capital investment. The institutional capacity of the wastewater utility of Greater Cairo was no better than the condition of its physical structures. There were significant deficiencies in its management and operation and maintenance practices. Worse yet, it did not have the organizational structure, staff skills, or project management systems required to oversee the execution of this massive infrastructure development project.

It became clear to the GOE and international donors that a well managed, modern, and properly equipped and staffed organization, responsible for the execution of these projects, was needed. To that end, in 1981 the Organization for the Execution of the Greater Cairo Wastewater Project was created by a decree of the Ministry of Reconstruction and the State for Housing and Land

Reclamation, No. 479/1981. This agency is known in the international donor community as the Cairo Wastewater Organization (CWO), and it is this name that will be used in this Report when reference is made to the Organization for the Execution of the Greater Cairo Wastewater Project. CWO, therefore, was established as a separate agency and independent of the Cairo General Organization for Sanitary Drainage (CGOSD), which up to 1981 was performing the functions of the newly created CWO.

The responsibilities of CWO, in brief, were to prepare the necessary plans for the expansion and improvement of the wastewater collection and treatment systems for Greater Cairo and to implement the approved projects. To that end, CWO would prepare tender documents, tender, award, contract, hold tenders and negotiations (with foreign as well as local bidders), and supervise the execution of contracts.

### **1.3 Past Project Activities and Achievements**

#### **Project Activities**

The formation of CWO came at a time of unparalleled infrastructure development in the country. The magnitude of the Greater Cairo Wastewater Project, and the challenges it presented to its planners and builders, are not well known or appreciated. To fully understand what CWO is and what its institutional capacity is, it is necessary to review this massive undertaking.

The Greater Cairo Wastewater Project started with the development of a master plan in 1978, which was funded by the Arab Fund for Economic and Social Development. The design and construction of the project did not start, however, until 1979 when the United States and the United Kingdom agreed to assist Egypt in moving forward.

The project area boundary encloses 875 square kilometers of Greater Cairo, and its collection and treatment elements are designed to receive and treat, by the year 2010, an estimated wastewater flow of 5.7 million m<sup>3</sup>/day from a projected population of 22 million. A more detailed description of the project will be presented below.

The major objectives of the GOE, which the project addressed, were to rehabilitate the existing collection system, minimize wastewater flooding, build new collection and transport systems, treat wastewater to contemporary standards, operate and maintain all facilities properly, reuse treated wastewater beneficially, and utilize processed sludge as a soil conditioner/fertilizer.

A joint venture of Black & Veatch International (BVI) and Camp Dresser & McKee (CDM) was selected as the US consultant. The British firm of Taylor Binnie & Partners was selected to be the UK consultant. Also, it was decided that the US and UK consultants should work together as one team. Accordingly, a consortium known as American British Consultants (AMBRIC) was formed and in 1979 an agreement was reached to appoint AMBRIC as the project's engineer.

In 1989, as a result of an Italian-Egyptian protocol, the Italian Government pledged to fund, by grant and loan, the foreign currency element for the construction of the Gabal El Asfar wastewater treatment plant. AMBRIC was appointed as the engineer.

The execution of the Greater Cairo Wastewater Project has spanned two decades thus far, and



has cost the GOE and international donors approximately seven billion Egyptian pounds. As of the end of 1996, thirty-six contracts, thirteen work orders and eighty-eight contract amendments had been issued. Additionally, twenty prime construction contractors had been involved during this period.

Through rehabilitation of existing facilities or new construction, the following infrastructure and support facilities have been provided by the project:

- 7,400 km of collection, interceptor and trunk sewers;
- Six wastewater treatment plants (including four with secondary treatment);
- Thirty high capacity pumping stations;
- 122 low to medium capacity pumping stations;
- One fleet maintenance facility;
- One mechanical cleaning equipment workshop;
- Forty-three supply/spare parts storage facilities;
- Three dedicated training centers;
- Nine testing/analytical laboratories; and
- One sludge disposal site.

### **Achievements**

Although the magnitude and cost of the project are impressive under any circumstances, they become more so when placed in the context of “Egypt in the early 80's”. At that time, the capabilities of the Egyptian public and private sectors in planning, design, construction, and operation and maintenance of such facilities were severely limited. Moreover, the involvement of foreign donors and consultants necessitated construction practices of the highest standards. A project of this nature would have posed a challenge to any mature western utility. In Egypt, the task was handed to a young governmental organization. As mentioned previously, CWO had just been formed to represent the owner of these facilities in overseeing the project’s execution.

This task, however, presented a major challenge. The newly created organization did not have experience in this type of work, nor did it have the proper institutional capacity. It did have, however, a small but carefully selected core staff of managers and engineers. This core staff worked hard, observed and learned from working with seasoned professionals from around the world, applied what they learned, and allowed others to develop. In so doing, they developed a corporate culture rarely seen in Egypt. Over the next twenty years they would become the key management team of CWO.

### **1.4 Current Activities**

The Greater Cairo Wastewater Project is not yet complete. As of the writing of this report, there are elements of the Gabal El Asfar wastewater treatment system still under construction. It will be another year before construction ends and after that there will be a period of commissioning and start-up of the remaining elements of the system.

Additionally, the needs of Greater Cairo wastewater collection and treatment infrastructure system have not been fully addressed. Significant deficiencies in capacity and level of treatment still

exist. There are plans to double the size of Helwan WWTP, expand Gabal El Asfar WWTP, add secondary treatment to Abu Rawash WWTP, and build more major wastewater conveyance lines. CWO is very much involved in the process of planning and identifying funding for this major additional construction. With USAID ending its aid for infrastructure development in Greater Cairo, it appears that future expansion will require local funding, foreign donors, and/or private sector participation.

Since 1990, the role of CWO has been expanding. As the construction of various elements of the project were completed in the West and East Banks, staff training, commissioning and start-up of these facilities began. CWO was no longer involved only in overseeing the execution of the project. It was responsible for ensuring that the facilities were operational and that the staff had the necessary skills and knowledge for their proper operation and maintenance, and for accepting and transferring control of the facilities to the owner, CGOSD. This responsibility required a slightly different organizational structure, and a new set of skills and knowledge for the CWO staff.

This expanded role, however, was viewed at the time, and correctly so, as both short term and transitional. It did not appear to require permanent organizational restructuring, additional management and quality control systems and procedures, nor substantive staff re-training.

In 1992, with the completion of the Amariya Pumping Station complex, things started to become a bit more complicated and challenging for CWO. A major dispute erupted between the CGOSD and the contractors regarding the quality of work done and compliance with specifications. The result of the still-unresolved dispute is that CGOSD, to date, has not accepted the Amariya Tunnel Pumping Station (TPS), which is being operated and maintained by private contractors under an extended maintenance period contract, and under the supervision of CWO.

Although all elements of the Gabal El Asfar WWTP were not completed, in 1997 it was decided to place in operation those that were completed to allow for treatment of about fifty percent of the influent wastewater. Considering, however, that the construction of the treatment plant was being done under one contract, no partial acceptance of the facility by the Owner could take place. As a result, the completed components of the facility are operated and maintained under a special contract with British and Egyptian contractors and under the supervision of CWO.

The CWO of today, in terms of functional responsibilities, is very different than that of the early 1980s. The supervision of the O&M services at Amariya TPS and the oversight of the special O&M contract at Gabal El Asfar WWTP are outside the originally envisioned core functions of the organization. Moreover, the efficient and effective operation and maintenance of these two contracted facilities are of immense importance to the sustainability of the Greater Cairo wastewater treatment system.

## **CHAPTER 2**

### **ORGANIZATIONAL ASSESSMENT**

The organizational assessment presented below focuses mainly on the functional capabilities of CWO, in the context of its stated mission and objectives, and the current challenges facing the organization.

#### **2.1 Organizational Structure**

##### **Governance and Organizational Structure**

The current organizational structure of CWO, in terms of division and delegation of authority and responsibility, as well as the presence of a clear chain-of-command, is satisfactory for enabling the organization to perform its mandated and originally envisioned functions of construction contract execution.

The organization, as established by Ministerial Decree 479/1981, consisted of four central departments:

- Central Department for Execution
- Central Department for Planning and Projects
- Central Department of Finance
- Central Department of Administration and Land Acquisition

Currently, CWO's structure is built around three central departments, instead of four, which represent the original core functions of the organization. Finance and Administration and Land Acquisition have been combined into one central department, Finance and Administration. Additionally, there are several support functions attached to the Office of the Chairman such as legal, technical office, security, MIS, and statistics. The evolved functions of CWO in contracted O&M services, however, are not reflected in its organizational structure.

The organization is governed by a Board of Directors, and an Executive Committee follows-up on the activities and projects which are the responsibility of CWO.

The lines of reporting are distributed evenly among the three central departments, and vary from three to four in each department. The Office of the Chairman, however, has twelve direct reports, which although common in Egyptian governmental organizations similar to CWO, pose a supervisory burden to the Chairman.

#### **2.2 Staffing Levels & Skills**

At the time of the assessment, the organization had 737 employees assigned to the three central departments and the Office of the Chairman as follows:

• Office of the Chairman	242
• Execution Sector	177
• Central Dept. of Finance and Administration	318

Of the 737 employees, only 375 (51%) are permanent employees and 338 (46%) are temporary or contract employees. This low percentage of permanent staff is viewed as very positive, as it allows the organization to adjust its staffing levels as its work load fluctuates, and reflects the nature of construction, CWO's core business which fluctuates as well.

There are 13 consultants and technical specialists in the organization, and 11 of its current staff are seconded to CWO from other governmental agencies and public sector companies (CGOSD and Arab Contractors mainly).

The above staff managed a construction portfolio of nearly LE 650 million in FY 98/99 invested in six major projects. This indicates a fairly high productivity rate for an organization of this nature.

## 2.3 Financial Sustainability

An analysis of CWO's final accounts for FY 98/99 shows the following expenditures:

Salaries and bonuses	LE 12,311,300
Commodities and Services	LE 337,052

Since CWO is not contracted by CGOSD, nor does it have a source of revenues, then its entire funding needs for performing its mission must come from the Government of Egypt.

Of the LE 12.3 million spent in salaries, bonuses, and benefits, only LE 2 million or 16.2% was funded by BAB 1, the usual official mechanism for funding such an expenditure. The balance, LE 10.3 million or 83.8%, was funded by BAB 3, which the official funding mechanism for capital improvements.

This analysis reveals that while the vast majority of CWO's personnel related expenditures appear to depend on the execution of capital projects (BAB 3), they present a financial management and long-term sustainability challenge to the organization. CWO should develop and implement a financial management model and plan for its variable or project execution derived expenditures. More detailed recommendations for such a model and plan are presented in Appendix A of this Report.

## 2.4 Functional Capabilities

### Strategic Planning

CWO is the lead agency for the planning of wastewater infrastructure for Greater Cairo. A 15-year Strategic Plan has been prepared by a consultant, with CWO's participation. This plan, however, is more of a Facilities Master Plan than an organizational strategic plan. CGOSD is involved in all steps of the planning process and acts as a clearing house. Once the plan is accepted by CGOSD, it is submitted to the Ministry of Planning (MOP), which has final approval authority. Any changes to this plan must be approved by MOP.

Although a formal, organizational strategic planning process does not exist, the evaluation team found that all CWO senior managers understood their stated mission, as well as the challenges that they are currently facing to meet their responsibilities. This can be attributed to the consistent, open, and participatory management style of the CWO Chairman.

### **Performance Management System**

Organizational performance is a rational basis of measuring the effectiveness of CWO or any other organization. Up to this point, CWO's main mission has been to oversee the proper and timely execution of the Greater Cairo Wastewater Project. To that end, the organization, with the assistance of USAID and foreign consultants and contractors, has developed the necessary systems and procedures to ensure proper planning, preparation of tender documents, specifications and contracts, tender analysis, contract award, and implementation and asset acceptance.

There is no formal organizational performance management system that evaluates the performance of the entire organization based on clear and measurable performance indicators. Also, there is no meaningful personnel performance appraisal system. As in all GOE agencies, 99% of all CWO staff receive an excellent annual rating, which is expected by the staff as it does not measure performance, but is a basis for determining salaries, bonuses, and allowances.

### **Management Support Systems**

The Central Department for Execution has developed a very comprehensive data base that includes information about all the projects which CWO oversees. The weakness of this system is that it is developed and maintained mainly by one person. There is no institutional capability and no plans for staff succession to address the nearing retirement of the computer programmer.

The Department of Statistics has developed data bases for personnel and financial records, and uses the Internet effectively. Most importantly, this information is made available to the Chairman and senior management, routinely or by request, as management tools. The Department of Statistics uses the Internet to access information about new technology and the availability and prices of materials. It is in the process of developing a web site for CWO and a computer network.

There are about 80 computers in CWO, half of them old, out of service, or used just as typewriters. The remaining 40 computers support about 500 technical, management, and financial staff. All senior managers have a personal computer (either desktop or laptop), and most of them seem to be using them routinely. There are not sufficient in-house computer engineers and technicians for support and maintenance. This is not uncommon in Egypt, given that CWO remains a governmental organization unable to pay the going rate of IT professionals. Although it appears that IT is a management priority, an analysis of CWO's budget line-items indicates that there are not sufficient funds budgeted for sustainability of this function.

### **Personnel Administration**

Personnel planning, compensation, bonuses, allowances, and promotions are not independent actions, policies, and procedures that CWO can exercise in the management of its operations. As with all other Egyptian governmental organizations, it is strongly affected by the Central Agency for

Organization and Administration (CAOA), which must approve its organizational structure, all positions, job descriptions, and personnel qualifications, salary ranges and increases.

### **Human Resources Development and Training**

Possibly the most notable findings of this institutional assessment were the impressive technical and management skills, as well as the knowledge and attitude of the senior management of CWO. They displayed an uncommon spirit of teamwork, comradery, confidence, and positive thinking; demonstrated good analytical skills; and unanimously supported the management practices and leadership of the Chairman.

Many factors have been influential in the creation of the current situation. There is no institutional capacity, however, present in CWO to ensure that this organizational edge can be maintained. There is no training department, and no formal training plans and training needs have been developed, nor are any under development. Worse yet, serious deficiencies exist in CWO's training budget. Only about LE 4,000 was spent for training in FY 98-99 for an organization of more than 700 employees.

### **Project Execution**

The core business of CWO is to plan for major wastewater infrastructure projects in Greater Cairo; seek and secure funding for their execution; prepare tender documents, specifications and contracts; conduct tender analyses; award contracts; supervise project implementation; and accept and transfer the assets to the owner, which in this case is CGOSD.

In carrying out this function, CWO appears to have performed well. As a result of outstanding leaders and staff, it has been able to develop and implement effective systems and procedures to fulfill its mission. During the past ten years, two assessments, commissioned by USAID, have been conducted to evaluate the capability of CWO to manage the execution of donor sponsored projects. With the exception of a few weaknesses, CWO was found capable of carrying out host country contracts. Although this institutional assessment does not address the functional areas of CWO dealing with the execution of projects with the same level of detail, the observations of this assessment are consistent with those of the previous evaluations.

For the past two decades, CWO has played a key role in the development of the wastewater infrastructure of Greater Cairo. At the same time, it developed specialized expertise in planning, preparing bid documents, selecting winning bids and awarding contracts, and overseeing the execution of such contracts. It is a relatively small organization, well managed and remains focused on its core business.

One problem that has evolved in the project execution phase, that needs to be solved, is the resistance of CGOSD to assume ownership of the facilities created under CWO. The position taken by CGOSD places CWO in a difficult situation where while it lacks specific authority, yet must protect the assets for the greater good of the citizens of Cairo.

The Greater Cairo Wastewater Project, however, is not yet completed. As of the writing of this report, there are elements of the Gabal El Asfar wastewater treatment system still under construction. It will be another year before construction ends and after that there will be a period of

commissioning and start-up of the remaining elements of the system.

Additionally, the Greater Cairo wastewater collection and treatment infrastructure is not complete. Significant deficiencies in capacity and level of treatment still exist. There are plans to double the size of Helwan WWTP, expand Gabal El Asfar WWTP, add secondary treatment to Abu Rawash WWTP, and build more major wastewater conveyance lines. CWO is very much involved in the process of planning and identifying funding for this major additional construction. With USAID ending its aid for infrastructure development in Greater Cairo, it appears that future expansion will require local funding and/or private sector participation.

Moreover, the Greater Cairo system is planned to be divided into three PEAs (Cairo, Giza, and Qaliubiya), if the sectoral reform is approved. This will likely create additional needs for an organization, like CWO, especially since the newly created PEAs will not have the institutional capacity to oversee the process of contracting and contract performance monitoring of major capital programs.

It can be concluded, therefore, that CWO will be required to continue its activities in performing its traditional and mandated core responsibilities, as defined by Ministerial Decree No. 479/1981 and reaffirmed by the proposed sectoral reforms.

### **Supervision of Contracted O&M Services**

As mentioned in Part I: Introduction, of this report, the role of CWO has evolved in the past five years to include the supervision of contracted operations and maintenance services for a portion of the Greater Cairo wastewater collection and treatment system. Given that this is a new activity for the organization and very different than its core functions, the assessment team gave it focused attention, as a possible problematic area.

There was never an intent, when the mission of CWO was first established, that CWO would be required to undertake extended activities in the area of operations and maintenance management of facilities. Consequently, CWO had never focused its resources on developing contract and management structures that are particularly suited to the unique requirements of such an activity.

In particular, more rigorous, quantifiable performance standards are required within the contract documents, so that operations and maintenance standards are met on a daily, routine basis. Based on observations made by the assessment team at Amariya Pump Station and at Gabal el Asfar Wastewater Treatment Plant in terms of deficiencies in maintenance, one possibility is that the current contracts do not lend themselves to rigorous performance enforcement and need to be amended, or a new competitive procurement for services needs to be conducted, to provide CWO with contract documents that serve the objectives of environmental compliance and asset preservation.

If CWO's role in these activities needs to continue into the foreseeable future, CWO will need to make changes to its organizational structure, as well as develop additional capacity in the unique contracting and monitoring of this type of service.

The Greater Cairo wastewater collection and treatment system is a complex one consisting of a vast network of pipelines, tunnels, pumping stations (including the world's largest), and treatment

facilities. To operate and maintain such a system, which also greatly impacts public health and the environment, is a very challenging undertaking in any socio-economic setting. It is more so in Egypt, where excessive staffing levels and subsidized operating budgets present an additional burden to public utility management.

Continuing the operation, maintenance and management of the Greater Cairo wastewater system, in its current arrangement, presents potential public health and political risks to the Government of Egypt. Moreover, without a final resolution to the assumption of ownership and operation of assets by CGOSD, this situation, resulting in the assets being managed by CWO, will continue to be a financial burden on the national treasury.

GOE has correctly assessed these liabilities and is currently taking action in the water and wastewater sector by means of the legal, institutional and regulatory reforms. With the emphasis that is given to private sector participation, however, contracting with the private sector and managing the performance of contracts should be a high priority for the GOE.

While the preparation of the proper bid and contract documents is fundamental to any contracting process, ensuring strict contractual compliance, by monitoring its execution, is essential to achieving the end product, which is the purpose of the contracting process. In other words, not ensuring contract compliance is analogous to having the best laws and not enforcing them.

Moreover, managing the execution of contracts is a more demanding process than contracting. Bid documents and contracts can include “boiler plate” information, that once developed can be used repeatedly. Also, once the selection of the successful bidder is made, and the contract is awarded, this process is terminated. On the other hand, ensuring contract compliance is a continuous process, which spans the life of the contract, and which requires a disciplined and consistent practice.

For all of the above reasons, CWO needs to strengthen its institutional capacity in bidding, negotiating, and awarding service delivery contracts and monitoring contract compliance.

## **2.5 Institutional Challenges**

To fully understand what CWO is, it is necessary to look into what is behind its documentable success story, and examine the challenges that lie ahead.

### **CWO’s Success Factors**

- CWO consists of a core group of professionals, most of whom have been with the agency since its inception. They are well educated and trained in modern design and construction management practices. They have “rubbed shoulders” for the past twenty years with a wide variety of foreign consultants. They have a team spirit, an uncommon collegial bond, and an excellent work ethic.
- Many of the key technical and management staff have received extensive training, both in-country and abroad, by the foreign donors.



- They are being driven by the challenge and prestige of being associated with one of the largest and most prestigious public works projects in modern Egypt, and are the elite of the public sector professionals of their field in Egypt.
- The organization has been blessed with excellent leaders who have a clear vision of how the organization should fulfill its mission. They have created an uncommon environment of informed and participatory management.

### **CWO's Challenges Going Forward**

Most of these successes, however, lie behind them and many challenges lie ahead. The leadership of the organization needs to address the following questions:

- Can CWO sustain its past practices and institutional edge?
- Can it continue to attract and retain quality staff?
- Is the organization developing the next generation of managers and technical specialists?
- Will training and personnel development remain as priorities, and can the organization afford to sustain it without foreign assistance?
- Is the organization committed to developing and sustaining the appropriate information technology?
- Will the organization adopt performance management systems for all its functional areas?
- What will be the next "glue" which will keep them together?
- How should CWO evolve to meet the needs and challenges of a changing water/wastewater sector?

To continue its success in performing its stated and evolving mission, CWO must develop strategies, policies, procedures, technologies, and total quality management systems.



## **CHAPTER 3**

### **ISSUES AND INITIATIVES IN THE WATER/WASTEWATER SECTOR**

The water and wastewater sector in Egypt is a dynamic one and currently is undergoing substantive legal and regulatory reform, which will have a major impact on the Greater Cairo wastewater utility. Additionally, there are several issues affecting the present operations of the wastewater facilities of CGOSD which pose a threat to their sustainability.

#### **3.1 Assessment of CGOSD**

- Sustainability Issues (CGOSD has not demonstrated the capacity to do its current job).
- Out source major pump stations, transmission mains and treatment plants.
- Focus CGOSD's operational role on customer service and the collection network.

In November 1998, USAID commissioned an assessment of the current managerial capacity of CGOSD to carry out its mission of protecting public health and the environment through proper wastewater collection, treatment, and environmentally safe disposal.

The assessment concluded that:

...There is evidence that a deterioration of the substantial investment made by Egypt in wastewater has begun, and with that will come reduction in the quality of the service and most likely frequent system failures. To cope with this, the critical issue of operational sustainability must be addressed....

...The assessment revealed that the system is currently running, in the sense that it pumps wastewater. However, it is slowly, but steadily, deteriorating because of a lack of proper operation and maintenance.

... A high probability exists that this insufficient proper operation and maintenance, or insufficient spare parts, will result in operational failure of a major pump station or wastewater treatment plant causing wastewater back ups or spills over large areas of Greater Cairo. This operational failure could happen within the next five years.

This assessment conclusion should not be viewed as an indictment of CGOSD. The utility, one of the largest in the world, faces enormous financial, organizational, and personnel challenges which most likely will remain for the next five to ten years. Even the proposed wastewater sector reforms will not significantly improve the current conditions for CGOSD to avoid a critical failure of its wastewater system. Worse yet, the CGOSD management does not seem to be engaged in any kind of substantive planning and/or corrective actions aimed at alleviating the problems the utility is facing.

An observation made in the CGOSD assessment was that CGOSD had not moved to take ownership of the Amariya pumping system assets, nor was it negotiating the partial assumption of ownership of the Gabal el Asfar Wastewater Treatment Plant.

In light of the above findings, the assessment team presented a solution model for the institutional

sustainability of the wastewater utility. The summary solution strategy was to initiate a rapid change in the way the assets are protected and operated by:

- Improving internal performance; and
- Contracting all operational services.

The reason for this recommendation was that the utility cannot continue with its current management practices and that the collection and operating services of the utility would perform better if they would be separated and managed by different entities. The collection and conveyance network (excluding the major pumping stations) is easier to manage and operate, and does not depend as much on the availability of spare parts as major pumping stations and treatment plants do. Outside expertise through service and management contracts, however, would assure that the major pump stations and transmission lines, and treatment facilities are operated optimally, maintenance is performed effectively, and appropriate spare parts are purchased and stored on site.

To that end, the assessment recommended that CGOSD should seriously consider engaging a provider of private sector services to operate and maintain all of its treatment plants and major pump stations under a performance based contract.

### **3.2 Sector Reform Project**

- |  |
|--|
| <ul style="list-style-type: none"><li>• Creation of an inter-ministerial policy coordination committee (IPC).</li><li>• Creation of a regulatory body.</li><li>• Creation of the Central Department for Private Sector Projects.</li><li>• Corporatization of local utilities.</li></ul> |
|--|

In 1998 the Egyptian Cabinet decided to move forward with nationwide reorganization of the water and wastewater sector and preparation of draft decrees. Under the chairmanship of the Chairman of the National Organization for Potable Water and Sanitary Drainage (NOPWASD), a draft law and presidential decree has been drafted by a steering committee which has been assisted by the Legal, Institutional and Regulatory Reform Project (LIRR) funded by USAID.

The principal objectives of the sectoral reform are:

- enable and encourage utilities to achieve new service and performance standards;
- enable and encourage utilities to achieve operating cost recovery; and
- encourage private sector participation.

#### **Components of the Reform Program**

The main components of the proposed reform are:

- Creation of an Inter-ministerial Policy Coordination Committee (IPC) chaired by the Minister of HUUC. The Committee will set policies and procedures for public investment in the sector and assure coordination between the sector's objectives and policies and those of other sectors.

- Creation of a Water/Wastewater Sector Regulatory Agency reporting to the Minister of HUUC. The goal of the Agency will be to regulate water/wastewater sector in such a way as to enable and encourage utilities to achieve a higher level of performance and cost recovery, and enhance their capacities for self-sufficiency.
- Creation of the Central Department for Private Sector Projects reporting to the Minister of HUUC. The Department shall aim at promoting private sector participation in the establishment and implementation of water and wastewater projects and management of existing utilities.
- Creation of the Housing and Utilities Sector in the Ministry of HUUC to follow up activities in the sector institutions and agencies, collect and analyze data, produce reports, work with the IPC, and prepare studies.
- Corporatization of local utilities to facilitate their financial and operational sustainability.

The proposed sectoral reforms summarized above are aimed at changing the institutional and regulatory framework to provide incentives (rewards and sanctions) for local utilities to improve customer service and commercial performance. The new institutional and regulatory framework is also required to assure private sector investors of the opportunity to recover costs and make a reasonable return on their investment. Private sector participation offers prospects of subsidy reduction, off-budget investment, and technological and managerial innovation.

In light of this proposed sectoral reform, it is evident that the GOE wants to increase private sector participation in expanding and improving the infrastructure of the water/wastewater sector, and improving customer services by better management and operational performance.



## **CHAPTER 4**

### **RECOMMENDATIONS FOR STRENGTHENING CWO'S CAPACITY**

CWO is one of the better organized, managed, and staffed Egyptian governmental organizations. That observation might lead to the conclusion that CWO needs to do nothing but maintain its present status. Such a practice would, without a doubt, mark the beginning of the decline of the organization. For CWO to maintain its current leadership position in the project design/construction, procurement and management industry, and to meet the evolving challenges that it is facing in its expanded responsibility for longer term contracted operations and maintenance, it is essential that CWO take specific steps to reorganize and strengthen its institutional capacity.

The following are key recommendations aimed at strengthening CWO's capacity to fulfill its stated mission and current responsibilities.

#### **4.1 Organizational restructuring**

The current organizational structure of CWO reflects, in most part, its stated mission. It is the structure of an organization whose core functional areas are planning, contracting, and overseeing the execution of wastewater systems infrastructure.

##### **New Functional areas**

Organizational restructuring and definition of functional areas will be necessary to create two new departments for (a) contract management procurement, and (b) contract monitoring and compliance reporting. These new departments could be under the Central Departments of Planning and Execution respectively. CWO has strong foundations in construction contracting. It needs to develop similar specialized expertise in the contracted operations and maintenance field.

##### **Strategic Planning**

CWO lacks the institutional capacity to do strategic planning. Although the organization has strategic plans, they are prepared mostly by outside consultants, and they only address future infrastructure development needs. The organization should consider creating a permanent staff function for strategic planning reporting to the Office of the Chairman, and with more comprehensive coverage.

#### **4.2 Staff Development**

CWO is fortunate to have a large cadre of engineers and managers who have a high degree of competency in their respective areas of expertise. This is, however, the result of intensive training provided to CWO's staff during the last two decades by foreign donors. The organization does not have a dedicated training function, nor any training plans. Worse yet, its internal training budget for all training activities is a minuscule 0.03% of the agency operating budget, which is well below any meaningful level.

## **Planned and Sustainable Training**

For CWO to maintain its competitive edge and meet its current challenges, it is essential that it adopt a strong personnel development policy independent of any outside assistance. Additionally, the new functional areas will require a set of skills which do not currently exist in CWO. Specifically, the organization should consider the following actions:

- Establish a training unit under the Central Department of Finance and Administration.
- Conduct task analyses for all functional areas, especially for managing the contracting and monitoring process of O&M services contracts.
- From these task analyses, develop performance-based training programs.
- Consider conducting internal (peer) training. There is considerable expertise within CWO. By sharing this knowledge with others, the layer of expertise will increase.
- Establish a reference library.
- Increase the training budget line item to a minimum 1.5% of the operating budget.

## **4.3 Technology Development & Transfer**

Paraphrasing an axiom, CWO cannot be a “first class organization with a third class technology”. Developing appropriate technology and applying it wisely are essential to CWO’s continuing success. Although the organization has in place adequate technological foundations, there is much more that needs to be done.

### **Information Technology**

CWO should expand its information technology (IT) capabilities, both in terms of staff and equipment, and increase its application in more functional areas of the organization. Networking of computers, and training in computer graphics, production of documents, computer maintenance, and Internet use should be top priorities.

The biggest challenge that CWO faces, however, is not in the expansion of its IT capabilities but in assuring that the outputs of IT are reliable and accurate. As the organization becomes more dependent on IT outputs for its decision making, it is critically important that appropriate quality controls are instituted to review and verify the accuracy of the inputs and outputs of the computerized management support systems.

### **Standardized Bid and Contract Documents**

The contract structures used for delivering extended period operations and maintenance services in the wastewater sector should be performance based. They should include clear and measurable performance indicators, which focus on effluent compliance, cost effectiveness and protection of the infrastructure.



To that end, CWO should develop, either in-house or with the assistance of outside consultants, standardized bid and contract documents that include performance standards (*specifications*). Moreover, the organization should develop standardized pre-qualification and selection criteria for operations and maintenance contractors.

#### **4.4 Organizational Performance Management**

There has been an increased emphasis on organizational performance in the western world during the past two decades. This has been reflected on USAID's institutional capacity building programs as well. Managing organizational performance is perhaps the single most important activity an organization (private or public) can perform to assure that it fulfills its mission. The objectives and activities of its core functions, the personnel development programs and activities, the financial and management systems, that an organization implements, should all be driven by the results of an organizational performance assessment.

A performance management system is essential for CWO, especially as the organization adjusts to its evolving role from infrastructure execution oversight (easily evaluated) to service delivery contract management (more difficult to evaluate). The performance management system adopted by CWO must address not only the proper systems and procedures, but the proper management mind-set that is able to recognize and measure the performance indicators of this new functional capability.

It is recommended that such a organizational performance management system be created within CWO with the appropriate policies and procedures.

#### **4.5 Contracts Monitoring and Compliance**

Although monitoring contractual compliance is a subset of the overall organizational performance management system presented above, it is highlighted as a stand alone function, considering that the core business of CWO is contracting and managing execution of contracts.

It is recommended that CWO create a Contractual Monitoring and Compliance unit which reports directly to the Office of the Chairman, and is independent of the Central Department of Execution. The mission of this unit will be to assure strict compliance with the terms of the contracts in a fair and equitable manner for all parties concerned. Its functions would be analogous to those of a quality assurance and control, or internal audit functions.

Considerable effort needs to be expended in this area, preferably by outside consultants, in developing the appropriate performance indicators, compliance checklists, and reporting mechanisms.



## **ANNEXES**



## **ANNEX A**

### **RECOMMENDED LIST OF NEEDED PLANS, STANDARDS AND PROCEDURES**

This section focuses on presenting a list of documents and procedures which CWO needs to have in place for a) the effective implementation of its role in contracting, and monitoring execution of contracted O&M services; and b) the organizational strengthening of its traditional services. There is a need to develop these documents and procedures because they do not currently exist.

#### **1. Detailed Plan, Documents, and Procedures for New Contract Management Procurement Department**

Develop job descriptions, conduct task analysis and training needs assessment of new positions; develop training program; deliver training; and prepare standards and procedures for conducting the procurement process as following:

**Bid Documents:** Bid documents which include the contract performance standards (specifications) for the service delivery or concession contracts. These standards should include:

- Effluent Compliance Standards
- Operations and Maintenance Performance Standards
- Cost Recovery (Cost Control) Targets

**Contractor Pre-Qualification Criteria:** These criteria should be used for CWO to determine that the pre-qualified contractors have a verifiable and acceptable performance record, and the required current institutional and financial capacity to comply with the terms of the contract.

**Contract Documents:** These should be performance-based contracts which should include clear and measurable terms based on the Effluent Compliance Standards, Operations and Maintenance Performance Standards, and Cost Recovery Targets.

#### **2. Detailed Plan for New Contract Monitoring and Compliance Reporting Department**

Develop job descriptions, conduct task analysis and training needs assessment for new positions; develop training program, deliver training; and develop standards and procedures for conducting the monitoring process as follows:

**Data Collection Sheets:** They should allow for the gathering of sufficient data to determine compliance with effluent quality standards, O&M performance standards, and cost recovery targets. They should include, but not be limited to:

- Effluent Compliance Standards (BOD, TSS, pH, etc.);

- Operations Performance Indicators (operations logs, housekeeping, condition of process equipment, buildings, grounds);
- Maintenance Management Program (work orders issued/completed, spare parts inventory);
- Safety Audit (accident prevention, compliance with safety program); and
- Cost Recovery Targets.

**Evidence of Performance Report:** This report should consist of three sections (Performance Compliance Reports) which parallel the Contract:

- Performance Compliance Report (PCR) for Effluent Compliance;
- PCR for Infrastructure Protection; and
- PCR for Cost Recovery.

**Procedures:** The Evidence of Performance Report should be prepared monthly and submitted to the Chairman of CWO. Moreover, it should be integrated with the Organizational Performance Management System of CWO.

### **3. Detailed Overall Management Plan**

Develop a detailed management plan that would address the following:

- Detailed Current Organizational Analysis
- Detailed Current Compensation Analysis
- Functional Organizational Restructuring Plan
- Staffing Plan by Level and Skill Set
- Financial Management Model

### **4. Detailed Organizational Strengthening Plan for Traditional Services**

Develop specific programs to strengthen CWO in its traditional areas of service so that it can maintain the quality of the services it provides as defined in its original mandate. These would address particularly the following:

- Developing an in-house strategic planning group and work protocol that addresses both the long-term capital planning concerns of CWO, as well as its organizational strategic planning issues.
- Developing a Personal Development and Training Unit within CWO, a First Year Action Plan

for this Unit, and a First Year Budget.

- Developing a plan for both expanding the use of Information Technology within CWO, establishing internal quality control systems, and budgeting for proper IT support.
- Developing and implementing an organizational performance management system within the operations of CWO.

## **5. Detailed Financial Management Plan (Long-Term Sustainability)**

Develop a detailed Financial Management Plan to do the following:

- Develop a Cost Center Based Accounting and Reporting System.
- Develop Criteria for the Allocation of Costs to General Overhead.
- Develop Operational Parameters (Ratios) for Allocation of BAB 3 Funds.
- Develop Fee Schedules and Cost Recovery Procedures for Procurement Services.
- Develop Fee Schedules and Cost Recovery Procedures for Contract Monitoring and Compliance Reporting Services.
- Develop an Overall Financial Model for Managing the Finances of CWO and for Reporting Performance to the Chairman and Senior Management Staff.





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## **Interviews**

Eng. Hossein Hosny, Chairman, CWO

Eng. Hafez El Bolok, Deputy Chairman and Director of the Central Department for Execution, CWO

Eng. Mohamed Okasha, Deputy Chairman and Director of the Central Department for Planning and Projects

Eng. Samia Saleh El Din, Project Director of Planning, CWO

Eng. Zeinab Monir, Manager of the Technical Office

Eng. Amira, Manager, Department of Statistics, CWO

Eng. Aly Halifa, Technical Advisor to the Department of Execution for Project Management, CWO

Eng. Rifky Hassan, General Manager, CWO  
Mr. Glenn Whaley, Cairo Institutional Development Branch Chief, USAID  
Eng. Omar Abo El Maati, Project Officer, USAID  
Mr. G. Martin Wishart, Project Director, AMBRIC  
Several managers, engineers, scientists, and technicians at Gabal El Asfar WWTP and  
Amariya TPS

All interviews took place in Cairo between 15 November and 11 December 1999.



## **APPENDIX C ACRONYMS**

AMBRIC	American British Consultants
BOOT	Build, Own, Operate, and Transfer
BVI	Black and Veatch International
CAOA	Central Agency for Organization and Administration
CDM	Camp Dresser and McKee
CGOSD	Cairo General Organization for Sanitary Drainage
CWO	Cairo Wasterwater Organization
GOE	Government of Egypt
IPCC	Interministerial Policy Coordinating Committee
IT	Information Technology
LE	Egyptian Pound (\$1 = LE 3.34)
LIRR	Legal, Institutional, and Regulatory Reform Program
MOP	Ministry of Planning
NOPWASD	National Organization for Potable Water and sanitary Drainage
O&M	Operation and Maintenance
PCR	Performance Compliance Report
PEA	Public Economic Authority
TPS	Tunnel Pumping Station
USAID	U.S. Agency for International Development
WWTP	Wastewater Treatment Plant